City of Seattle
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City of Seattle
West Nile Virus Response Plan

Prepared by:
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Updated by Seattle Public Utilities March 2006

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Attachments

1.0 BACKGROUND

In February 2003, the City of Seattle adopted an Integrated Pest Management Plan for Mosquito Control (Seattle IPM Plan) outlining the City's general approach to managing the risks to human health and the environment from mosquito-borne diseases and mosquito control options in City operations. The premise of the plan is that the most effective and appropriate techniques for the City to use to manage these risks are to reduce mosquito bites by providing education and personal protection advice to City employees and to reduce mosquito breeding habitat on City property.

When determined appropriate, the City will consider using larvicides to control mosquitoes on City-owned property. In order to preserve that option, the City obtained coverage under the Washington Department of Ecology (Ecology) general permit (NPDES Permit No. WAG-992000), which covers all mosquito control activities that discharge larvicides directly into surface waters of the state. The Seattle IPM Plan serves as the City's Best Management Practices for the City's individual coverage under the general permit.

Since the Seattle IPM Plan was initially adopted, Public Health – Seattle & King County (Public Health), the county lead for WNV response coordination, released a West Nile Virus Response Plan (PH WNV Plan) providing a "science-based, regional framework to control WNV." The PH WNV Plan details the County's response strategy and suggests strategies for other jurisdictions and private lands. The three main components of the plan are education, surveillance, and control.

This document describes how, consistent with the PH WNV Plan, the City will implement the Seattle IPM plan, which may be amended over time. As with the PH WNV Plan, the Seattle WNV Plan is flexible and is expected to be modified by the City as more information about WNV in the Seattle area is learned.

2.0 INTRODUCTION

Mosquito-borne diseases pose both human health and environmental risks. While mosquitoes have long been potential vectors for diseases including St. Louis encephalitis, West Nile virus has become an increasing concern. First detected in the eastern United States in 1999, West Nile virus has spread rapidly to the west coast. Mosquito control efforts have not been successful in stopping the spread of the virus across the country.

3.0 APPROACH

The City of Seattle recognizes that West Nile virus poses risks to human health and the environment, and the City intends to undertake prudent measures to mitigate that risk on or near City property and facilities, potentially including the judicious use of larvicides. However, the City will not use larvicides in its drinking water facilities.

Seattle's overall approach is based on the assumption that the following hierarchy of general management steps is the most effective and appropriate for the City:

1) Conduct City employee education to increase awareness of risks, risk reduction steps, and personal protection.
2) Support Public Health's education and outreach messages about mosquito bite and habitat reduction in mailings to utility customers.
3) Monitor Public Health surveillance of West Nile virus outbreaks in wildlife and humans and monitor surveillance conducted by public health agencies in the other counties where the City operates facilities.
4) Attempt to reduce breeding habitat in City facilities.
5) Inventory certain major City owned or operated structures that may provide breeding habitat that cannot be readily reduced or needs regular maintenance to reduce breeding habitat.
6) If appropriate, encourage natural predators in potential mosquito breeding habitat, in accordance with state and federal requirements.
7) Use larvicide at the City's discretion after considering the prioritizing factors listed in Section 4.4.

The City will implement these steps throughout mosquito season, as determined appropriate.

4.0 IMPLEMENTATION

4.1 Organization

In order to coordinate the City's response to WNV, staff have been designated to perform the following functions:

Departmental WNV Coordinators

Responsible for defining procedures and identifying responsible parties to implement this plan at the departmental level.

There will be one WNV coordinator in each department that has property or employees who work in areas where mosquitoes are most likely to be biting. The Department of Neighborhoods and Human Services Departments also have coordinators as they regularly work with the public and with people over 50 who are at greater risk of developing more serious forms of West Nile virus. See addendum "West Nile Virus Staff" for a current list of departmental coordinators.

WNV Communications

These staff are responsible for developing WNV communication plans and materials for employee information, public contacts, and media inquiries. A citywide lead for communications will ensure departmental communications leads have appropriate materials and strategic direction for West Nile Virus communications. Additional communications staff may be enlisted to assist the citywide lead as needed. See addendum "West Nile Virus Staff" for a current list of communications leads.

Departmental Safety Staff

Responsible for providing employees who work in areas where mosquitoes are most likely to bite with general information on WNV, on reducing mosquito bites and breeding habitat, and on selecting and using repellents. Repellent use is always at the discretion of employees.

Citywide WNV Coordinator

This person coordinates the City's WNV response. Responsibilities include:

- Developing the City's WNV Plan and evaluating and modifying the City's response as new information is learned
- Serving as the lead contact with Public Health, Washington Department of Health, and the Washington Department of Ecology
- Providing Departmental Coordinators and Communications Liaisons with timely information throughout mosquito season
- Monitoring NPDES permit compliance, including maintaining departmental pesticide application reports and submitting required reports and information to Ecology
- Providing City-generated surveillance data to Public Health
- Assessing the effectiveness of the City's response

See addendum "West Nile Virus Staff" for contact information for the citywide coordinator.

4.2 Education and Communication

Step 1: Employee Education & Awareness
An all-employee e-mail will be sent from the Mayor providing general WNV information and emphasizing the steps that can be taken to reduce mosquito bites and breeding habitat. Frequently Asked Questions (FAQs) modeled after Public Health messages will be included or attached to the e-mail. The FAQs provide information about WNV, including how it is spread, what the symptoms are, relative risk of getting sick, and measures to reduce risk.

Through safety and/or other staff, City departments will provide additional information to the following employees:

- Staff and supervisors who work in areas where mosquitoes are most likely to be biting
- Facility staff responsible for monitoring for and reducing sources of standing water
- Staff who work regularly with people over 50 and unsheltered homeless so they will know how to refer any questions from these groups who have been identified by Public Health as "at-risk populations."

This additional information consists of City of Seattle FAQs for City Employees, which provide more specific information about the City's response, information on selecting and using repellents, and other personal protection measures.

Step 2: Public Outreach
As the lead WNV response agency for King County, Public Health will conduct the primary public education activities. Public Health has developed materials for distribution to the public and for partner agencies to distribute. The City will send utility customers information that reiterates the mosquito bite and breeding habitat reduction information developed by Public Health, in order to reinforce those messages.

When City staff are approached by the public regarding WNV, they are to refer the resident to the Public Health WNV hotline number. Calls with concerns about specific City property should be referred to the appropriate West Nile Virus Departmental Coordinator. If a call cannot be answered by referring to the Public Health hotline or referred to a specific department, the call should be referred to the Citywide WNV Coordinator (See addendum "West Nile Virus Staff" for contact information for the Citywide and Departmental coordinators, and Public Health WNV Hotline).

City customer service representatives and others likely to receive calls from the public also will be provided with scripted responses to common questions and referral information. All printed materials the City generates for a public audience will include the Public Health hotline number.

When customer service representatives or Citizens Service Bureau staff receive a call from a resident:

- Scripted answers to general questions will be provided by WNV Communications Leads. Most calls should be referred to the Public Health hotline.*
- Questions about specific City facilities should be referred to the department that owns that facility via the Departmental WNV Coordinator.*
- If the responsible department cannot be determined, the call should be referred to the Citywide WNV Coordinator.*
- In the event of a disease outbreak, the utility call center, Citizens Service Bureau or another alternate system may be established to respond to a large volume of citizen calls.

*See Addendum "WNV Staff" for contact names and numbers.

4.3 Surveillance

Surveillance of larvae and adult mosquito populations, avian mortality, confirmed equine and other cases of WNV, and human WNV cases is critical to determining appropriate response activities. As the lead WNV response agency for King County, Public Health will conduct the primary surveillance activities and coordinate and analyze surveillance activities conducted by other agencies. These activities include limited larval collection, adult mosquito trapping, dead bird collection and testing, human WNV case monitoring, and complaint tracking. Public Health will enter surveillance data into a GIS tracking system. City employees will notify Public Health when dead crows and other birds are found (see "Dead Crow Reports"). Departmental WNV Coordinators will notify Public Health and the Citywide WNV Coordinator of larvae dipping results and adult mosquito activity identified on City property.

Step 3: Monitor and Collect Surveillance Data
Through subscription to the Public Health e-mail information service, the Citywide WNV Coordinator will monitor the incidence of West Nile virus in Washington State, King County and the City of Seattle to help determine when control measures, changes to the Seattle WNV Plan, or departmental procedural changes might be warranted. As the situation evolves, the Citywide WNV Coordinator will inform Departmental WNV Coordinators of changing circumstances, resulting risk levels, and consequent modifications to the Seattle WNV Response Plan.

Dead crow reports
To help learn more about West Nile virus, Public Health is tracking the deaths of crows, jays and ravens. Employees who find an intact recently dead bird, should call Public Health – Seattle and King County at **206-205-4394**. Employees should be prepared to provide the address where the bird was found and other details about the bird's condition.

Larvae breeding or adult mosquito activity
If an employee suspects that there is a significant source of larvae or adult mosquito activity at a City facility or if the employee receives a complaint about a specific department facility, the

employee should contact the WNV departmental doordinator in his/her department. See addendum "West Nile Virus Staff" for a list of departmental coordinators.

Based on information provided by the employee, the departmental WNV coordinator, or his or her designee, will determine if the site should be investigated. The criteria outlined in section 4.4 will be used to prioritize sites requiring additional investigation to confirm mosquito activity and determine what if any response actions are warranted.

The Departmental WNV Coordinator shall fax the following information to Public Health-Seattle & King County and to the Citywide WNV Coordinator within seven days of confirming the activity (Attachment 2, Mosquito Activity Report)*:

- Location of mosquito activity – address
- Source of complaint (name & number if other than an employee)
- Employee reporting the activity (name & number)
- How mosquito/larvae activity was confirmed (dipping, observation)
- Dip test results
- Action, if any, taken to reduce mosquito breeding potential or referral to another agency (any larviciding must be approved by the Citywide WNV Coordinator)
- If no action was taken, provide rationale

*See addendum "West Nile Virus Staff" for fax numbers for Public Health and the Citywide WNV Coordinator.

Steps 4 & 5: Inventory and Minimize Breeding Habitat
Departments will eliminate sources of standing water, if practical. This may include removing the source (e.g. moving materials that may collect rainwater to covered areas) or routinely eliminating the standing water.

Seattle Public Utilities, Seattle Parks and Recreation, Seattle City Light, Seattle Department of Transportation, Seattle Center, Fleets & Facilities, and Seattle Public Library will inventory selected structures and facilities that may provide mosquito breeding habitat which will be of ongoing concern throughout mosquito season (April through October). An example is equipment permanently located outdoors that collects rainwater. Department staff should routinely monitor inventoried potential breeding habitat, identify standing water issues, and, where feasible and practical, eliminate standing water or sample for the presence of mosquito larvae.

Facility staff should routinely check yards and areas around City buildings for new sources of standing water from April through October.

<u>Routine Inspections of Inventoried structures and facilities</u>
By May 1 each year, departmental WNV coordinators are to submit to the citywide WNV coordinator an updated list of locations to be routinely monitored for standing water and mosquito breeding. An initial round of inspections of these inventoried facilities will be completed by June 1 each year. During the remainder of mosquito breeding season (through October 31), subsequent inspections of these facilities will occur within 7 days of a significant rain event which is likely to produce standing water that will not exchange within 7 days.

Written or electronic reports of these inspections (attachment 4 or equivalent) will be submitted to the citywide WNV coordinator by the first of the month following the inspection date. (Example: inspections that occur in July will generate inspection reports to be submitted by August 1).

4.4 Control

Steps 6 & 7: Mosquito Management, Control, and Larviciding
It is the City's policy to practice integrated pest management which favors pest prevention and natural controls over pesticide use. The City will work to reduce mosquito populations by reducing breeding habitat, encouraging natural predators, and when control is necessary, targeting the larval stage of the life cycle with a range of options including mechanical controls, biological pesticides, and chemical pesticides.

The City's overall response strategy, including how control efforts will be prioritized, will evolve as the level of risk in the City changes based on surveillance data, including but not limited to, the documented presence of WNV in the City generally or in specific neighborhoods.

Factors for Determining Need for Mosquito Management and Control Measures
The following factors will be considered to determine if a specific facility, structure or location is a potentially significant source of mosquito activity and if the facility should be prioritized for possible use of management and control measures including larvicides.

WNV Prioritizing Factors

1. There is water in the facility with mosquito larvae present at more than one larvae per three dip samples when sampling is practical.
2. Water in the facility will not exchange within seven days.
3. A facility is adjacent to areas of evening outdoor activities, such as playfields.
4. Larviciding has a reasonable potential to reduce mosquito populations in an area.
5. No significant natural predators are apparent. Natural predators are typically present in wetlands or other natural areas.
6. There are not more significant sources of larvae present on adjacent properties.
7. Habitat reduction, facility modifications and/or mechanical controls to reduce breeding habitat potential are not practical or effective.
8. A facility is located in an area of concern with regard to the number and density of residents over 50 years of age.
9. Treatment costs are not prohibitive.
10. Public Health has identified a significant concentration of dead crows or other birds or confirmed or suspected WNV cases nearby.

Possible Management and Control Options
Consistent with an IPM approach, the City's preferred mosquito management and control options are habitat reduction, and when practical, mechanical controls, use of natural predators where appropriate, and as appropriate – larviciding. Some examples follow:

- Habitat reduction: Eliminate sources of standing water by cleaning clogged gutters, emptying or removing containers, and moving or covering equipment left outside.
- Mechanical controls

- Natural predators: Encourage natural predators as appropriate.
- Larviciding: Use biological or chemical larvicides when habitat modification, natural predators or mechanical controls are not practical or effective.

Wetlands and other natural areas provide a broad range of natural functions such as groundwater recharge, filtering of contaminated runoff water, flood protection, and wildlife habitat. Draining wetlands is not an option, and larviciding is not a practical or an environmentally sensitive control measure. Moreover, wetlands typically house populations of natural mosquito predators.

Larvicide Selection

The City intends to select the pesticide that is effective in controlling the mosquito population and that is the least toxic to non-target species and appropriate to the attributes of the facility, except in response to documented development of resistance or in a declared public health emergency.

The following is the list of products, in the order of preference based on least toxicity to non-target species, which will be considered for use:

Bacillus thuringiensis israelensis (Bti)
Bacillus sphaericus (H-5a5b)
Monomolecular Surface Films
Methoprene Granular, Liquid, Pellet, or Briquet
Paraffinic white mineral oil. Paraffinic white mineral oil shall not be used in waters of the state unless:

1. The mosquito problem is declared a public health risk; or
2. The other control agents would be or are known to be ineffective at a specific treatment site; and
3. The waterbody is non-fish-bearing (consult WA State Fish and Wildlife concerning fish and wildlife) and application would occur outside of identified fish windows.

It is expected that Bti or Bs will be the primary larvicides used when larviciding is determined appropriate. Other products may be considered based on the conditions of the facility being treated or if there is confirmed or suspected presence of a West Nile Virus disease case or cases (mosquito, bird, horse or human) in the area and a product is required which will more effectively kill larvae or will kill pupae.

Procedures

1. Departmental West Nile Virus coordinators or their designees are responsible for responding to complaints of mosquitoes on city properties in consultation with the citywide West Nile Virus coordinator.
2. Departmental coordinators, utilizing the prioritizing factors in section 4.4, will recommend whether to larvicide a particular city property.
3. Departmental coordinators or their designees will contact the citywide West Nile Virus coordinator for approval to larvicide.
4. If the citywide coordinator approves larviciding, the appropriate departmental coordinator will ensure larviciding takes place in compliance with the City's IPM and NPDES permit requirements.

5. Any time dip testing is conducted, the departmental WNV coordinator or designee will complete and forward a copy of the Mosquito Activity Report (Attachment 2) to Public Health and to the citywide WNV coordinator within seven days.
6. If larvicide is applied, the applicator will complete a Discharge Monitoring Report for Aquatic Pesticide Applications (Attachment 3) or provide the information required in an alternate format approved by the citywide WNV coordinator. The departmental WNV coordinator will fax a copy of the report to Public Health and to the Citywide WNV Coordinator within seven days of the application. In cases of alternative information formatting, the citywide WNV coordinator will determine in what format and timeline the information is provided to Public Health.
7. Departmental WNV Coordinators are responsible for developing their own departments' procedures for following these protocols.

Addendum - West Nile Virus (WNV) Staff

Updated April 2006

Seattle Citywide WNV Coordinator

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Cell 206.240.8248
Fax 206.684.4631

Seattle Citywide WNV External Communications Coordinator

Mara Rogers, Seattle Public Utilities	206.615.0866

City of Seattle Departmental WNV Coordinators

City Light	Scott Powell	206.386.4582
Fire	Chief John Gablehouse	206.233.5154
Fleets and Facilities	Galen Mauden	206.684.0516
Human Services	Mary Blanchette	206.733.9405
Library	Rick Nishi	206.386.4158
Parks and Recreation	Barb DeCaro	206.615.1660
Planning and Development	Stacie Bonathan	206.684.8480
Police	Brian P.B. Nicholls	206.386.9797
Public Utilities	Shannon Kelleher	206.684.8745
Neighborhoods	Hazel Bhang	206.615.0885
Seattle Center	Beth Duncan	206.615.0364
Transportation	Urania Perez	206.684.5150

City of Seattle Departmental Communications Coordinators

Arts	Lori Patrick	206.684.7306
City Attorney	Ruth Bowman	206.684.8288
City Light	Sharon Bennett	206.684.3008
Civil Rights	Elliott Bronstein	206.684.4507
DPD	Alan Justad	206.233.3891
DOF, FFD, DEA	Katherine Schubert-Knapp	206.684.0480
Economic Development	Karin Zaugg Black	206.233.9810
Fire	Helen Fitzpatrick	206.386.1463
Health	Hilary Karasz	206.296.4767
Housing	LeAnne Nelson	206.684.0604
Human Services	Katia Blackburn	206.684.0253
Information Technology	D'Anne Mount	206.233.8736
Intergovernmental Relations	Kristine Kertson	206.233.0073
Legislative (City Council)	Jackie O'Ryan	206.684.8159

Library	Andra Addison	206.615.4103
Mayor	Marianne Bichsel	206.684.8878
Municipal Court	Patti McBride	206.684.8710
Neighborhoods	Peter McGraw	206.615.0950
OSE	Lisa Santos	206.615.0817
Parks and Recreation	Dewey Potter	206.684.7241
Personnel	Christine Andrade	206.684.7822
Police	Officer on Duty	206.684.5220
Public Utilities	Dan Nygaard	206.684.5885
Retirement	Mel Robertson	206.386.1292
Seattle Center	Perry Cooper	206.386.1974
Transportation	Gregg Hirakawa	206.684.8540

Additional Departmental Contacts

Citizens Service Bureau	Michelle White	206.684.8814
Mayor's Office for Senior Citizens	Irene Stewart	206.684.0492
Seattle Housing Authority	Virginia Felton	206.615.3506

Public Information Contacts

Citizens Service Bureau	206.684.CITY
Public Health WNV Hotline	206.205.3883

Report Dead Crows, other select birds to Public Health 206.205.4394